

AMENDMENTS TO THE CLAIMS

1-2. (Cancelled)

3. (Withdrawn) A gene composed of any of the following DNA and encoding a human modified thioredoxin having an apoptosis-inducing activity:

(1) a polynucleotide encoding a polypeptide having an amino acid sequence having a substitution of a cysteine residue at position 35 with another amino acid in an amino acid sequence of SEQ ID NO:2 and further having one or more substituted, deleted, inserted or added amino acids in positions except for positions 32 and 35, preferably positions 32 to 35 in the amino acid sequence of SEQ ID NO:2, and having an apoptosis-inducing activity, or a complementary chain thereof; and

(2) a DNA encoding a human modified thioredoxin having the substitution of the cysteine residue at position 35 with another amino acid in the amino acid sequence of SEQ ID NO:2 or a DNA capable of hybridizing with a complementary chain thereof under a stringent condition and encoding a polypeptide having an apoptosis activity.

4. (Withdrawn) A recombinant expression vector expressibly incorporating the gene of claim 3.

5. (Withdrawn) A transformant transformed with the expression vector of claim 4.

6. (Withdrawn) A method for producing a polypeptide having an apoptosis-inducing activity, the method comprising culturing the transformants of claim 5.

7. (Cancelled)

8. (Currently Amended) A method for cell internalization of a biologically active substance comprising

a step of contacting target cells with a biologically active substance and a polypeptide,

Use of a said polypeptide comprising consisting of an amino acid sequence represented by of
SEQ ID NO: 2 having the amino acid sequences of -Cys-Gly-Pro-SerA, -Cys-Pro-Tyr-SerA,
-Cys-Pro-His-SerA- or -Cys-Pro-Pro-SerA- (A represents any amino acid other than Cys) for cell
internalization of a biologically active substance at positions 32 to 35 thereof.

9-11. (Cancelled)

12. (Currently Amended) The complex according to claim 10 or 11 method according to claim
8 wherein the above-biologically active substance is a protein or a polypeptide.

13. (Withdrawn) A method for producing a polypeptide complex capable of being internalized into cells, the method comprising culturing transformants transformed with a recombinant vector having a polynucleotide encoding the complex in which a biologically active polypeptide has been bound to a polypeptide comprising an amino acid sequence represented by -Cys-Gly-Pro-A, -Cys-Pro-Tyr-A-, -Cys-Pro-His-A- or -Cys-Pro-Pro-A- (A represents any amino acid other than Cys).

14-16. (Cancelled)

17. (Withdrawn) A method for treating a cancer, the method comprising administering the modified thioredoxin of claim 1 or 2, if necessary, in combination with another anti-cancer agent to a patient with cancer.

18. (Cancelled)